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(54) Title: NEUROPROTECTIVE EFFECTS OF GLY-PRO-GLU FOLLOWING INTRAVENOUS INFUSION

(57) Abstract: Gly-Pro-Glu (GPE) is rapidly metabolized in vivo. We found that GPE infusion elicits potent and consistent neuroprotection in all brain regions examined, and in certain embodiments, the effects were greater than those of a bolus injection followed by infusion ("loading dose/infusion"). GPE reduced apoptosis in the hippocampus and inhibited microglial proliferation and prevented the injury-induced loss of astrocytes and improved long-term somatofunction. GPE after infusion showed a broad effective dose range (0.3-30mg/kg/h) and had a surprisingly extended window of treatment efficacy, permitting its use from 1 to at least as late as 24 h after neural injury. We also found that neuroprotective effects of acute GPE administration were prolonged and therefore capable of being used effectively to treat a variety of neurodegenerative conditions, even when administered after a neural injury. Thus, GPE can be an effective neuroprotective agent used either alone or co-administered along with other neuroprotective agents, antiinflammatory agents or peptidase or protease inhibitors. Compositions of GPE and protease and/or peptidase inhibitors are provided.